BASIC ANATOMICAL TERMINOLOGY

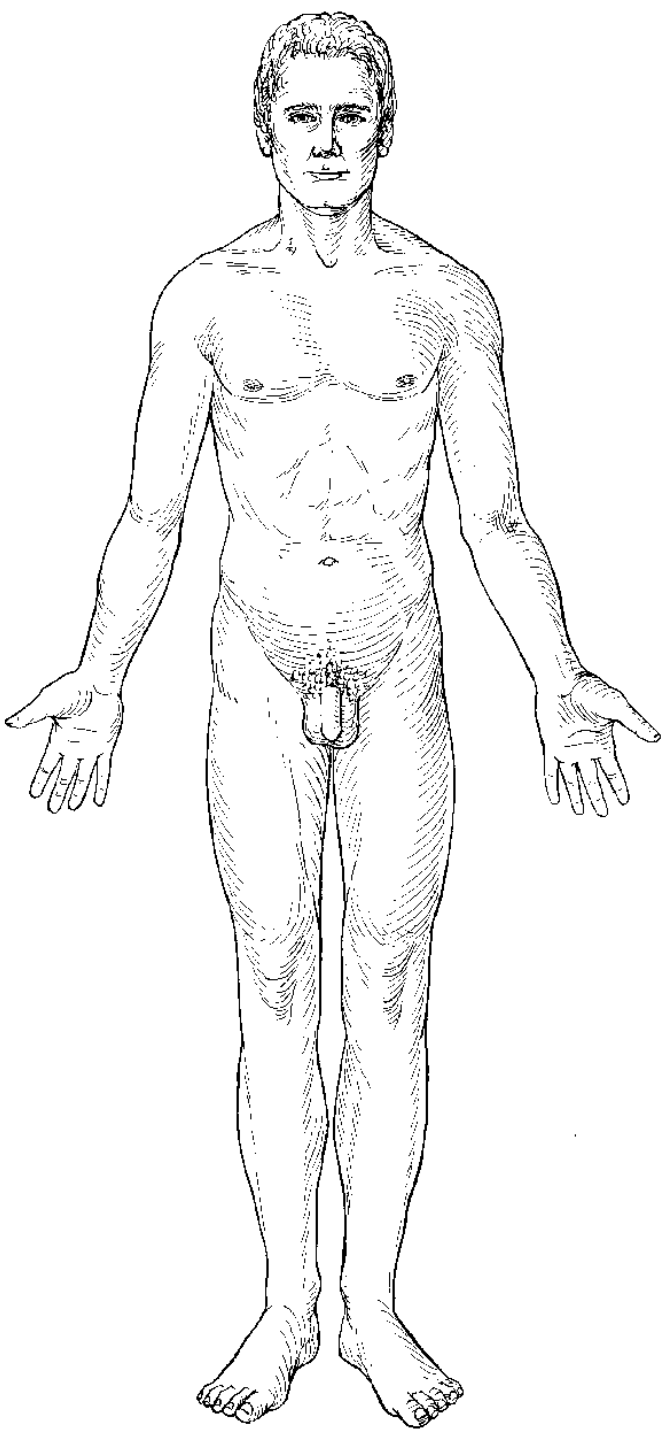
ANATOMICAL POSITION

- The ***anatomical position*** is a standardized method of observing or imaging the body that allows precise and consistent anatomical references.

ANATOMICAL POSITION

- When in the anatomical position, the subject stands erect facing the observer, the upper extremities are placed at the sides, the palms of the hands are turned forward, and the feet are flat on the floor (Fig. 1.5).

THE ANATOMICAL POSITION



TERMINOLOGY

- Reclining Position
  - If the body is lying face down, it is in the *prone* position.
  - If the body is lying face up, it is in the *supine* position.

REGIONAL NAMES

- Are names given to specific regions of the body for reference.
- Examples: include cranial (skull), **thoracic** (chest), brachial (arm), patellar (knee), cephalic (head), and gluteal (buttock) as seen in Fig 1.5.

PLANES

- **Planes** are imaginary flat surfaces that are used to divide the body or organs into definite areas & include:
  - Midsagittal (medial) and parasagittal, frontal (coronal), transverse (cross-sectional or horizontal) and **oblique**.

SECTIONS

- Sections are flat surfaces resulting from cuts through body structures. They are named according to the plane on which the cut is made and include transverse, frontal, and midsagittal sections (Fig. 1.7).

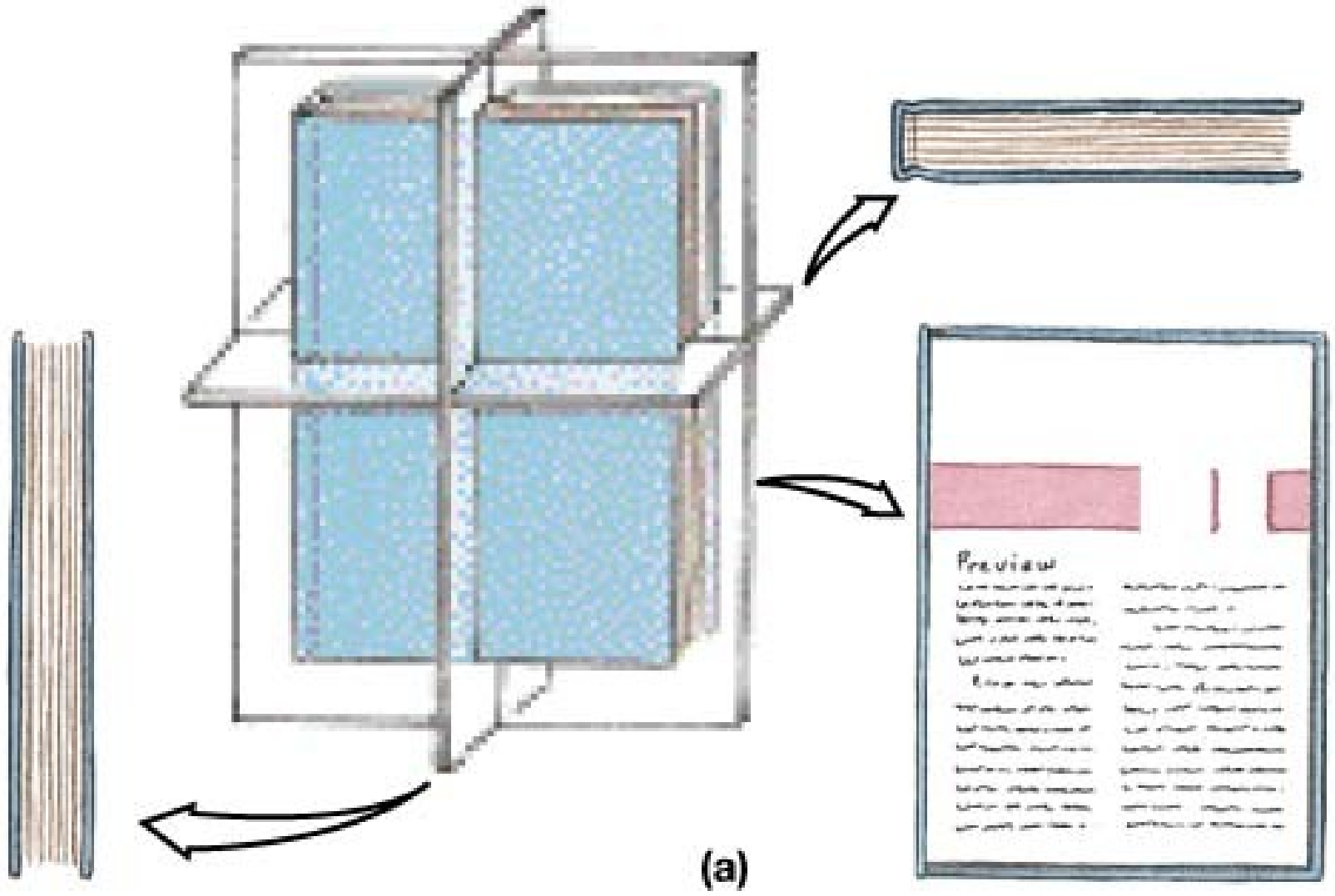
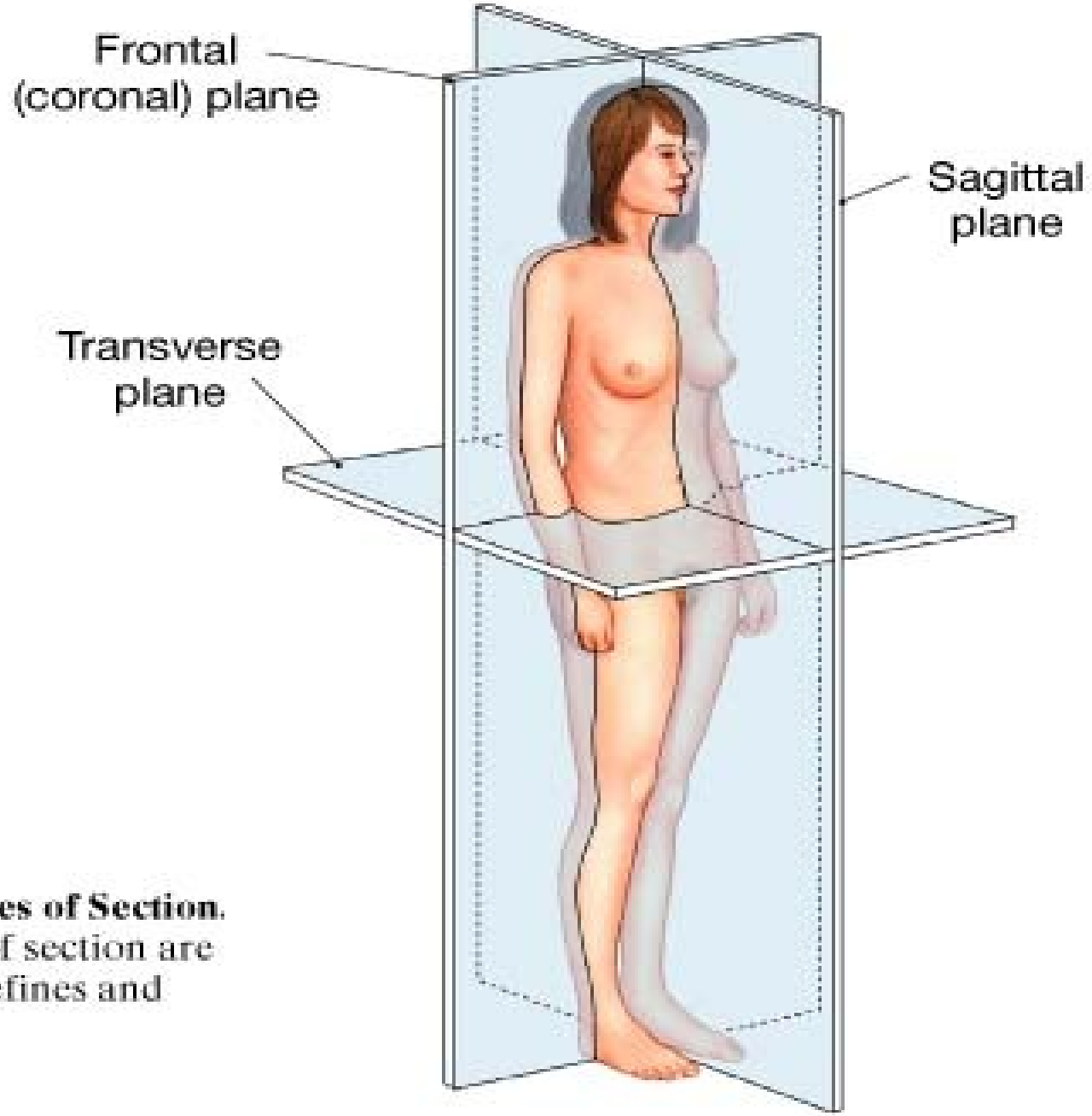
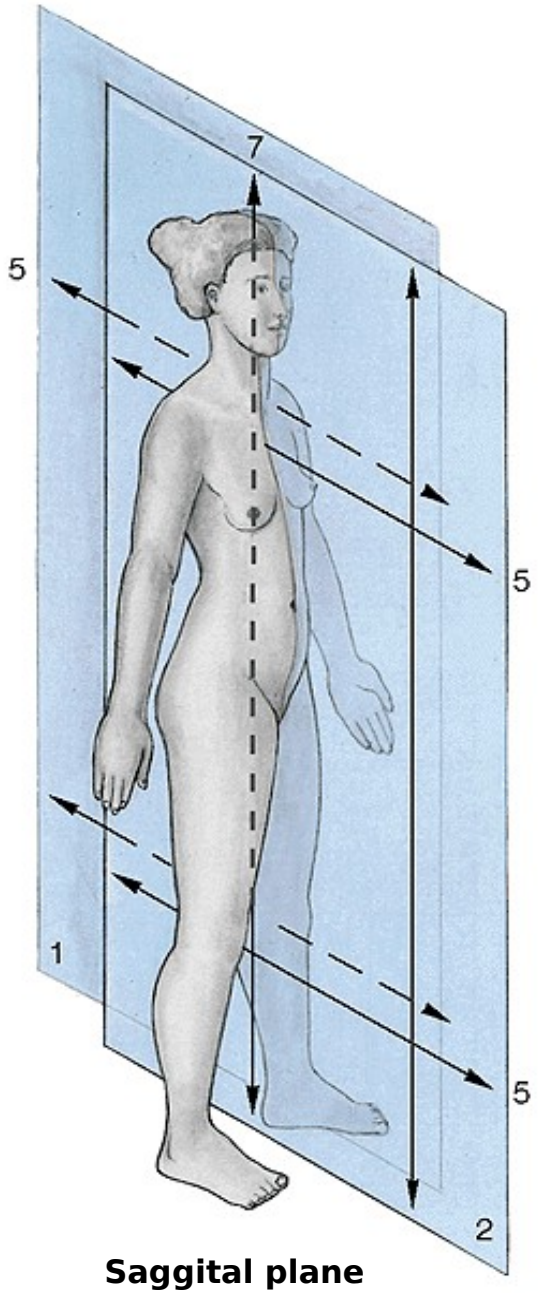


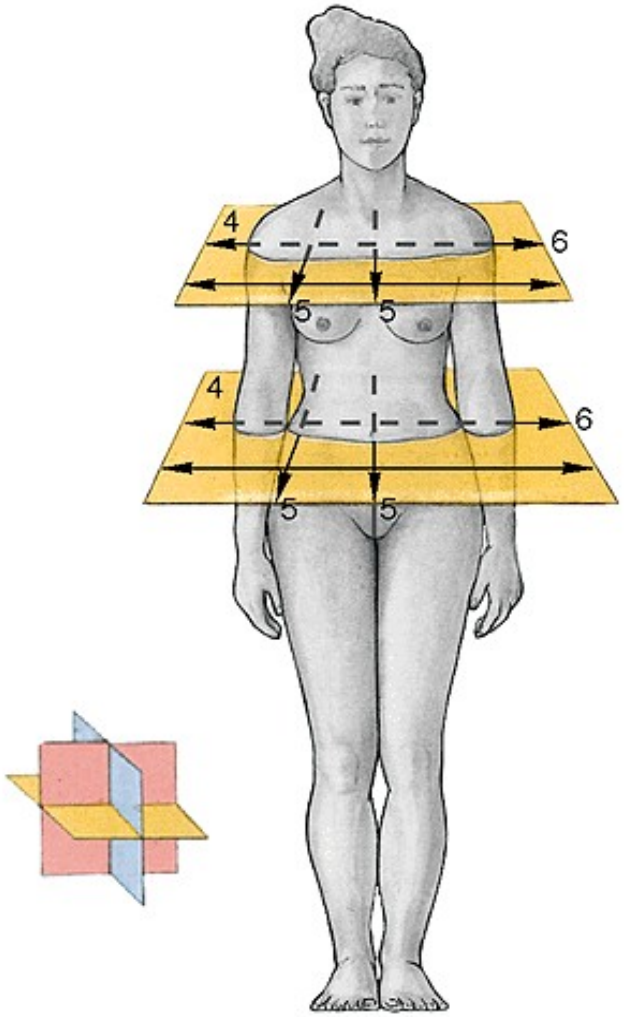
FIGURE 1-11 Sectional Planes and Visualization. (a) Taking three different sections through a book provides detailed information about its three-dimensional structure.



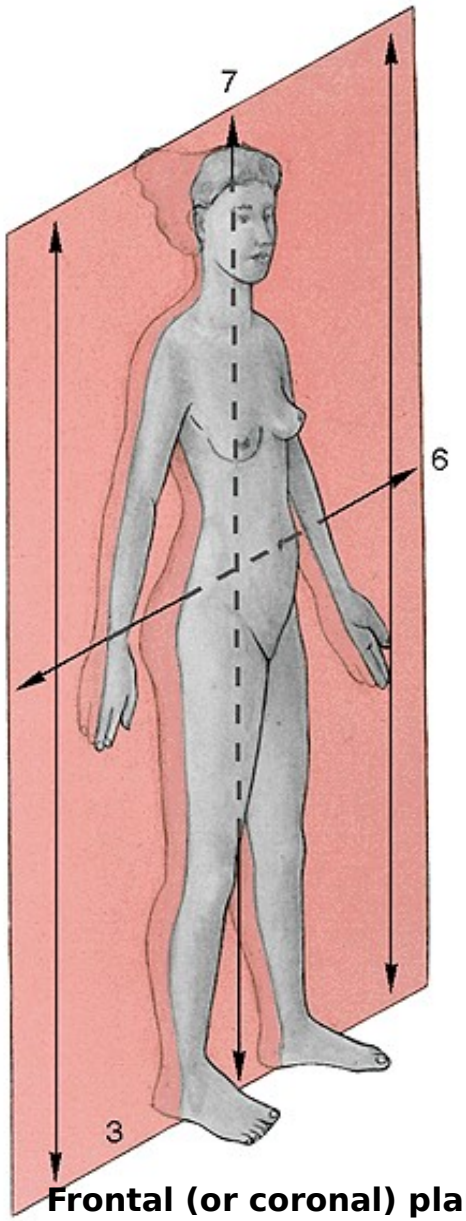
• ***FIGURE 1-10*** **Planes of Section.**
The three primary planes of section are indicated here. Table 1-3 defines and describes them.



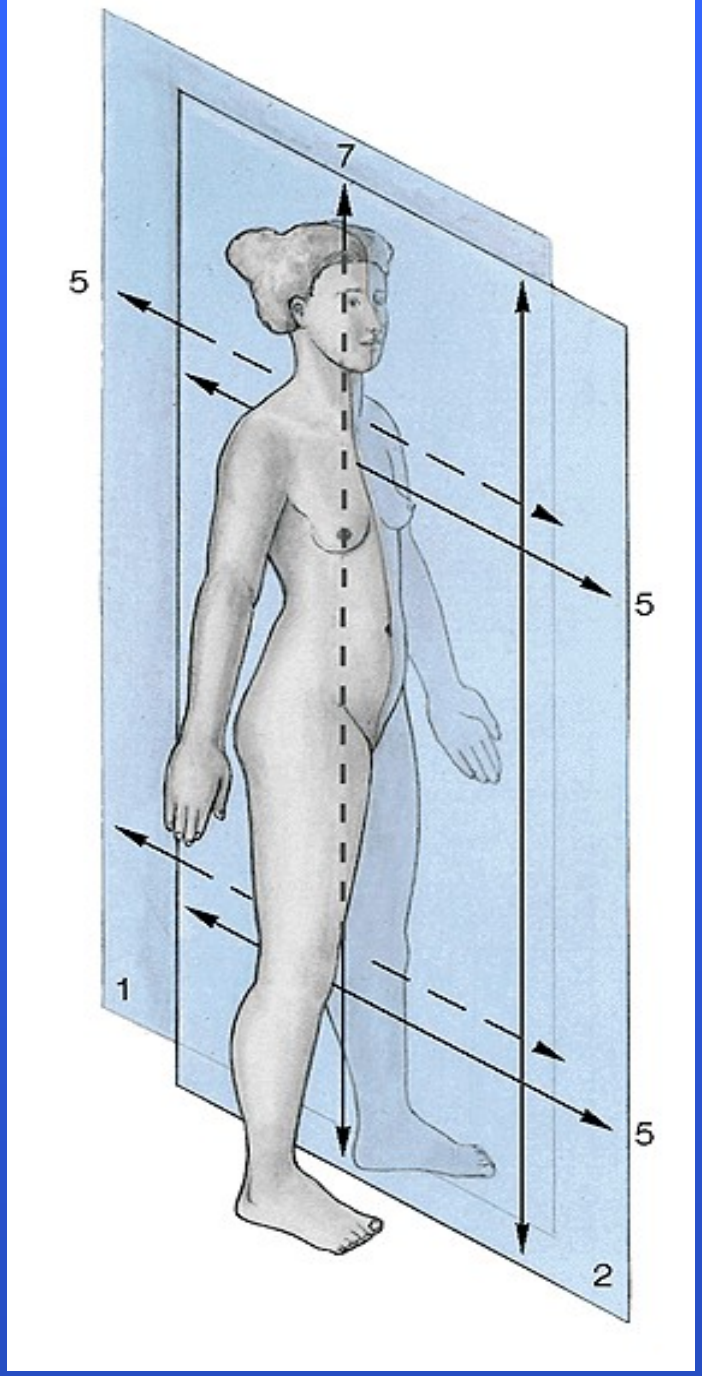
Saggital plane



Horizontal (or cross) section



Frontal (or coronal) plan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5
1
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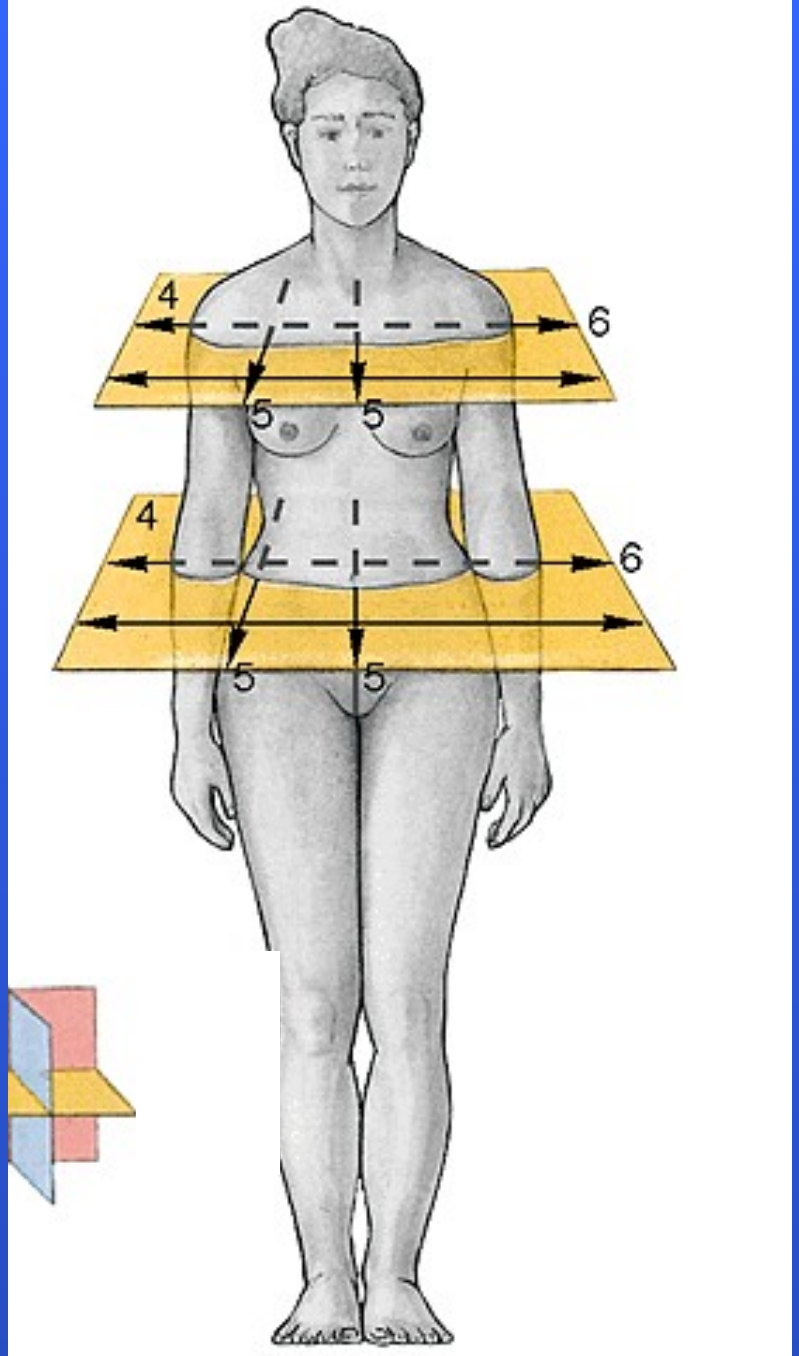
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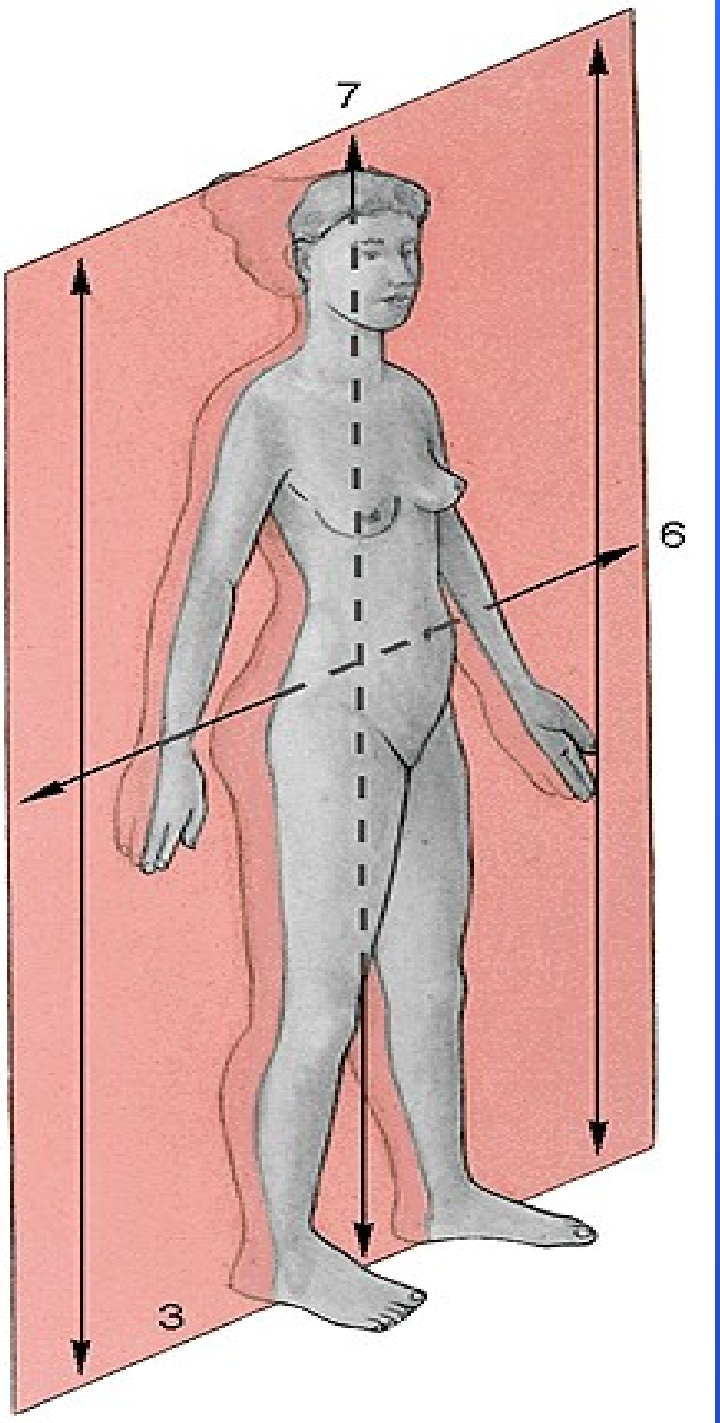
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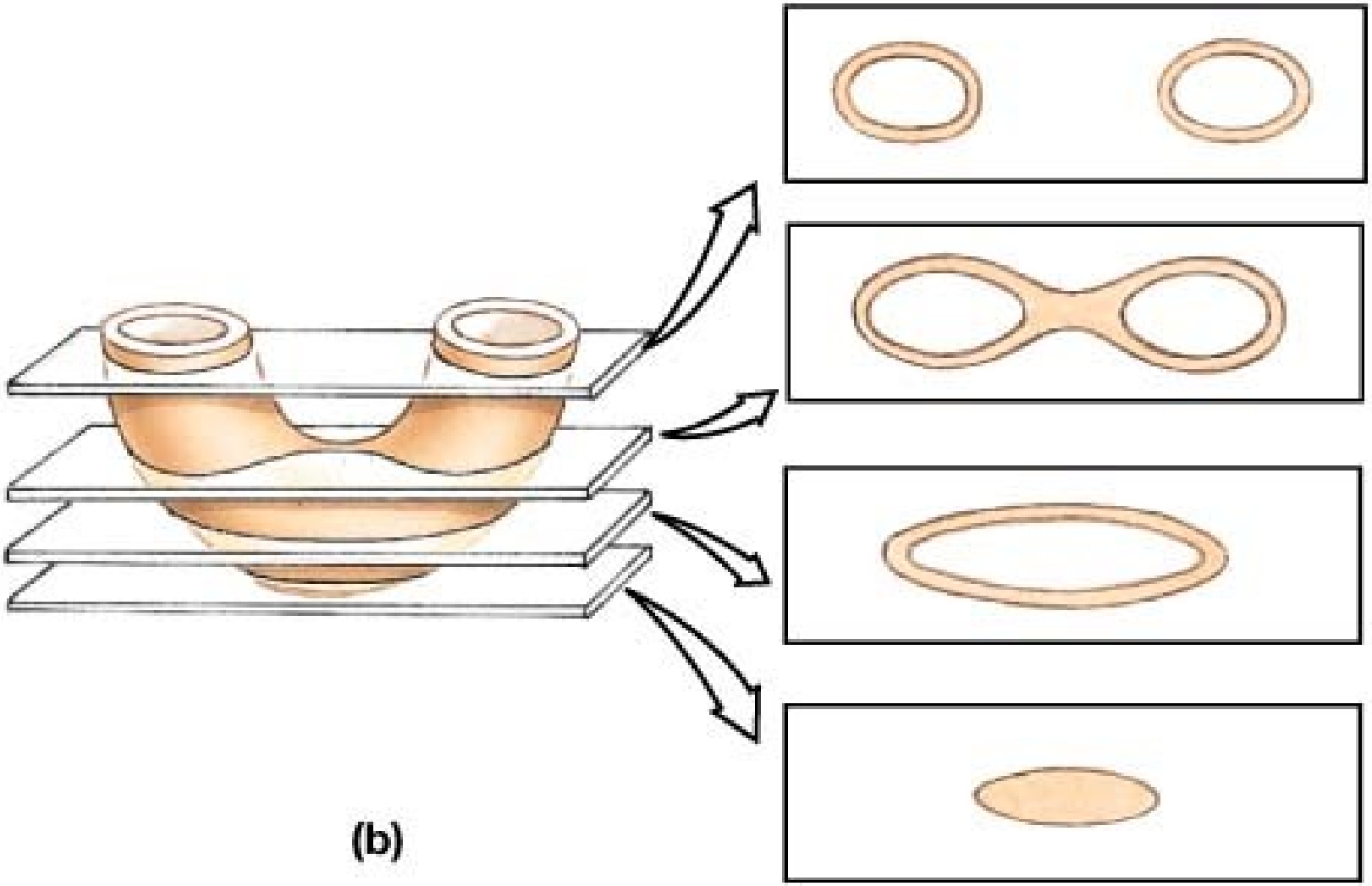


FIGURE 1-11 Sectional Planes and Visualization. (b) More complete pictures can be assembled by taking a series of sections at small intervals. This process is called serial reconstruction.

DIRECTIONAL TERMS

- Directional terms are used to precisely locate one part of the body relative to another and to reduce length of explanations.

DIRECTIONAL TERMS

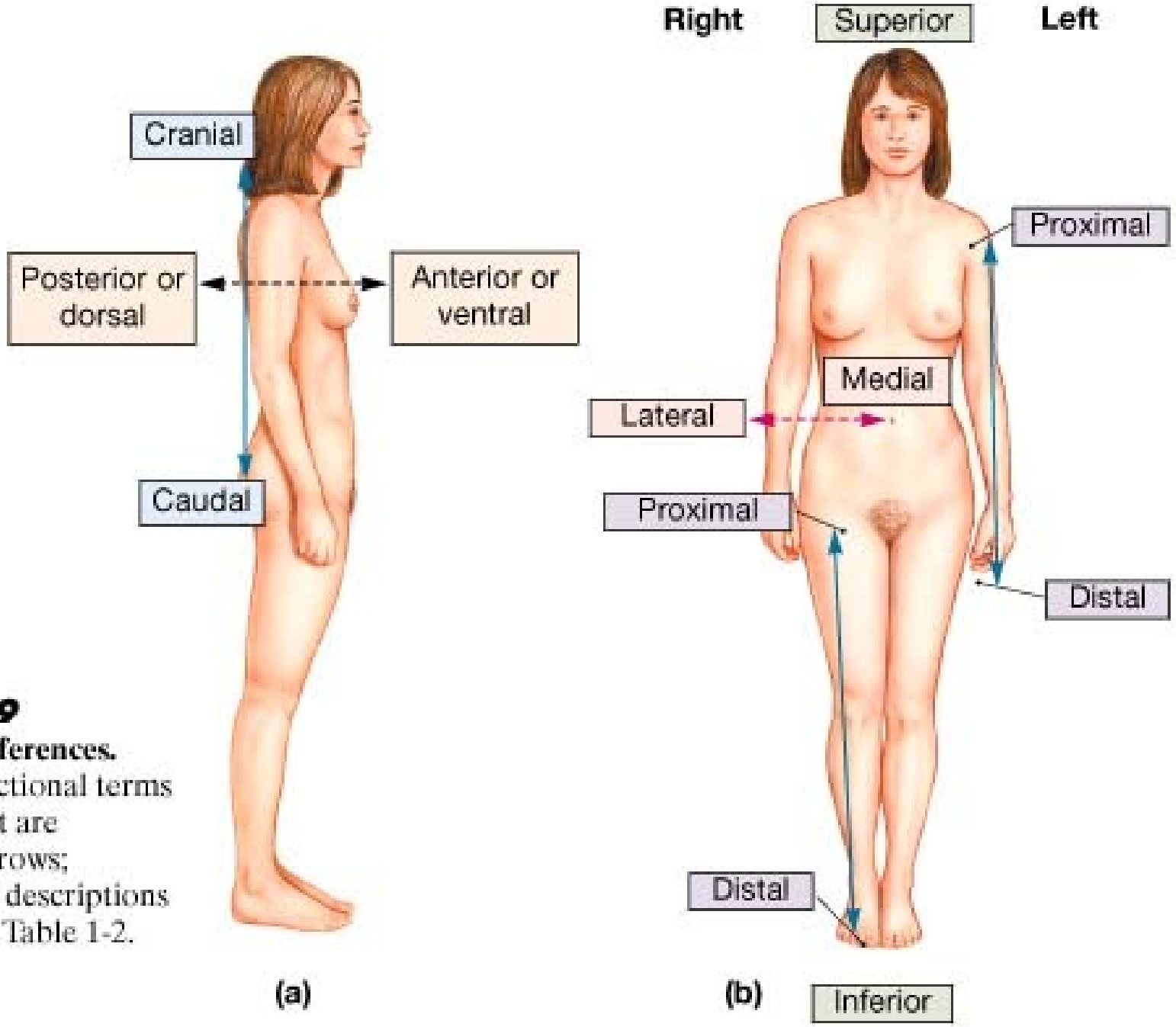
- Commonly used directional terms, such as dorsal, superior, medial, and distal, which are summarized in Exhibit 1.1 and Fig. 1.8.

DIRECTIONAL TERMS

- Superior/Cephalic/Cranial
- Inferior/Caudal
- Anterior/Ventral/Rostral
- Posterior/Dorsal
- Superficial: toward surface
- Deep: away from surface

DIRECTIONAL TERMS

- Medial: toward midline
- Lateral: away from midline
- Intermediate: between 2 points
- Ipsilateral: same side
- Contralateral: opposite side
- Proximal: near origin
- Distal: away from origin



•FIGURE 1-9
Directional References.
Important directional terms used in this text are indicated by arrows; definitions and descriptions are included in Table 1-2.

DIRECTIONAL TERMS

- External (Outer)
- Internal (Inner)
- Central
- Peripheral
- Parietal
- Visceral

TERMS OF MOVEMENT

- Flexion: decreasing joint angle
- Extension: increasing joint angle
- Abduction: moving from midline
- Adduction: moving toward midline
- Rotation: moving around axis
- Circumduction: rotating a limb

TERMS OF MOVEMENT

- Eversion: sole of foot outward
- Inversion: sole of foot inward
- Supination: palm of hand forward
- Pronation: palm of hand backward
- Protrusion: project from
- Retrusion: project inward

AREAS

- Head & Neck
- Trunk
  - Thorax
  - Abdomen
  - Pelvis & Perineum
- Extremities (or limbs)
  - Upper
  - Lower

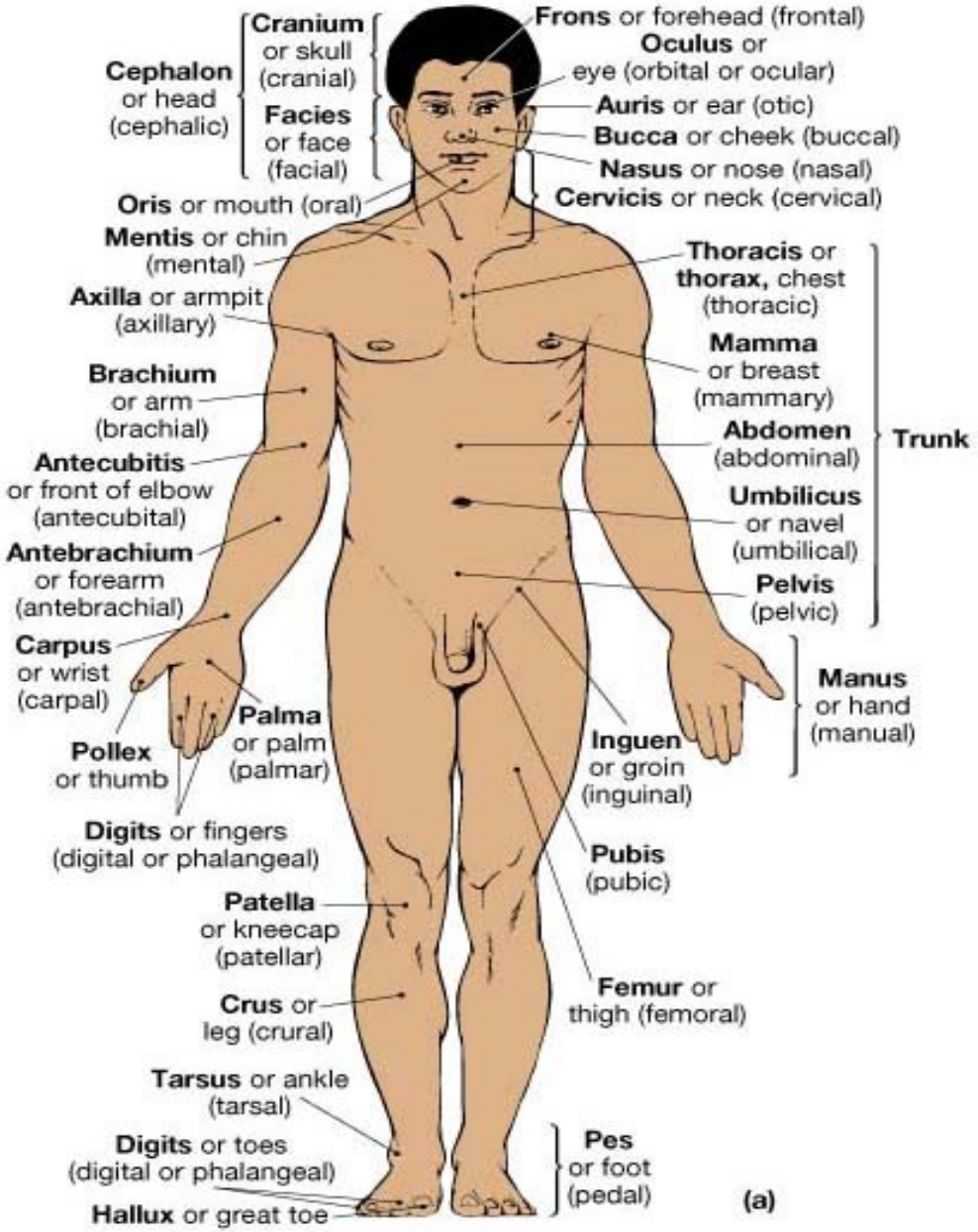


FIGURE 1-7 Anatomical Landmarks. The anatomical terms are shown in boldface type, the common names in plain type, and the anatomical adjectives in parentheses.

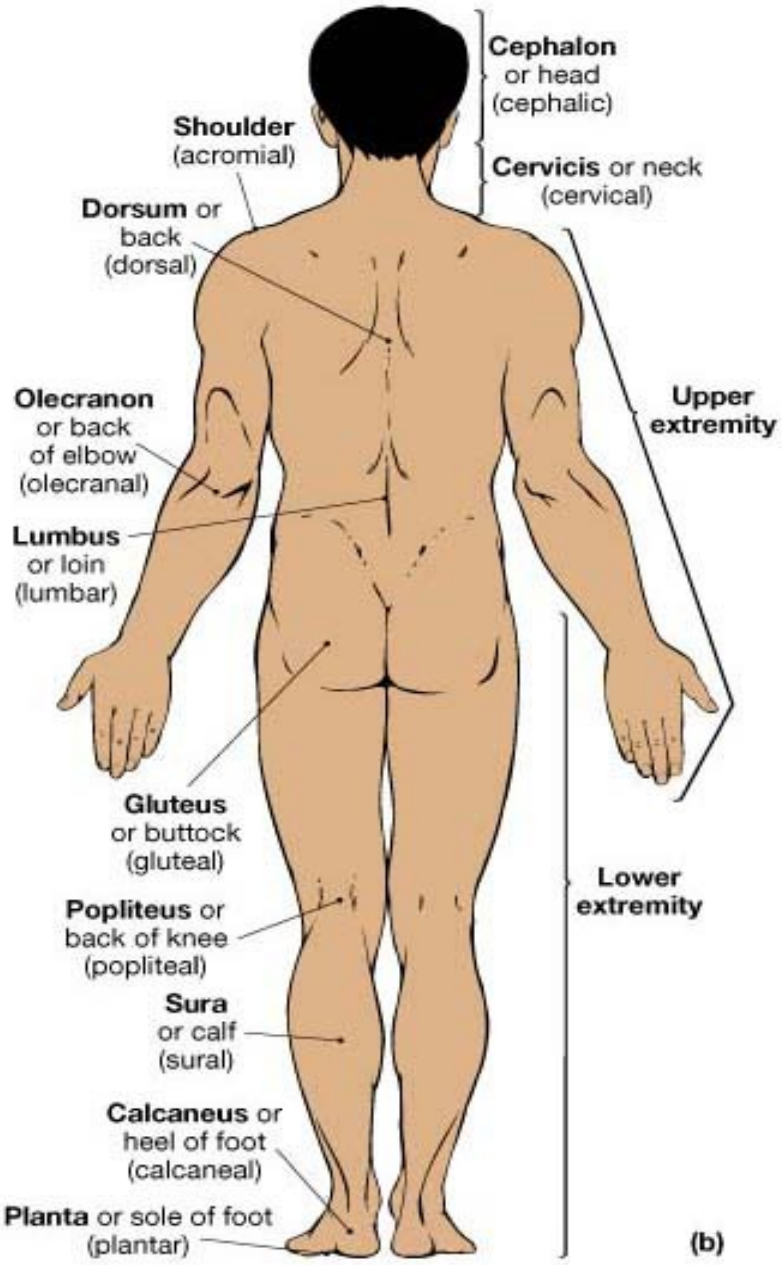


FIGURE 1-7 Anatomical Landmarks. The anatomical terms are shown in boldface type, the common names in plain type, and the anatomical adjectives in parentheses.

BODY CAVITIES

- Cranial
- Thoracic
- Abdominal
- Pelvic

BODY CAVITIES

- **Body Cavities** - Body cavities are spaces within the body that help protect, separate, and support internal organs.
  - Dorsal Body Cavity
  - Ventral Body Cavity

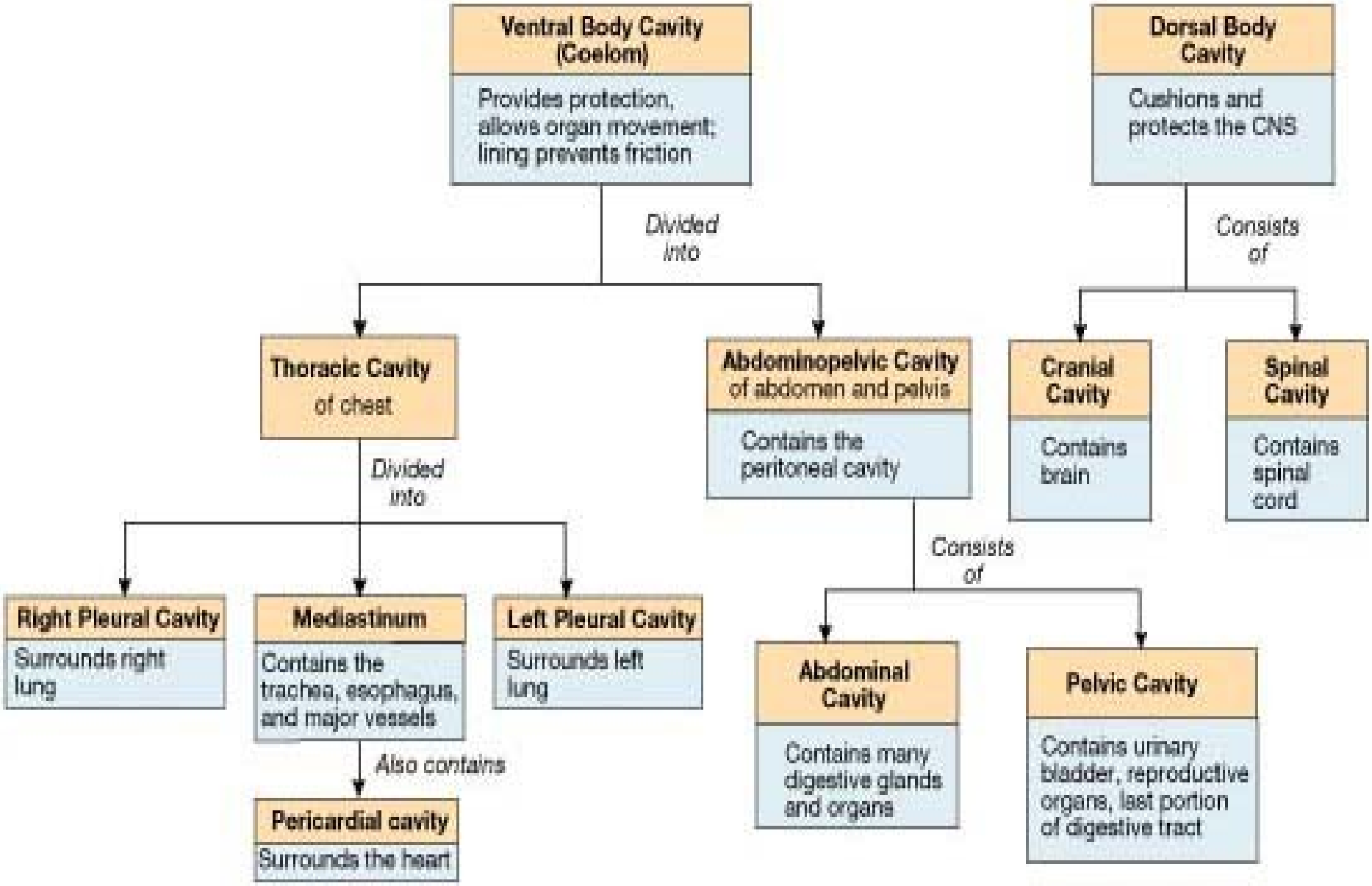


FIGURE 1-12 Relationships of the Various Body Cavities

BODY CAVITIES

- **Dorsal Body Cavity** - The dorsal body cavity is located near the dorsal (back) surface of the body and has two subdivisions, the cranial cavity and the vertebral canal.

BODY CAVITIES

- The **cranial cavity** is formed by the cranial bones and contains the brain.

BODY CAVITIES

- The **vertebral (spinal) canal** is formed by the bones of the vertebral column and contains the spinal cord.
- Three layers of protective tissue, called meninges, line the dorsal body cavity.

BODY CAVITIES

- **Ventral Body Cavity** - The ventral body cavity is subdivided by the diaphragm into an upper thoracic cavity and a lower abdominopelvic cavity.

BODY CAVITIES

- The thoracic cavity contains two pleural cavities, and the mediastinum, which includes the pericardial cavity (Fig 1.10).

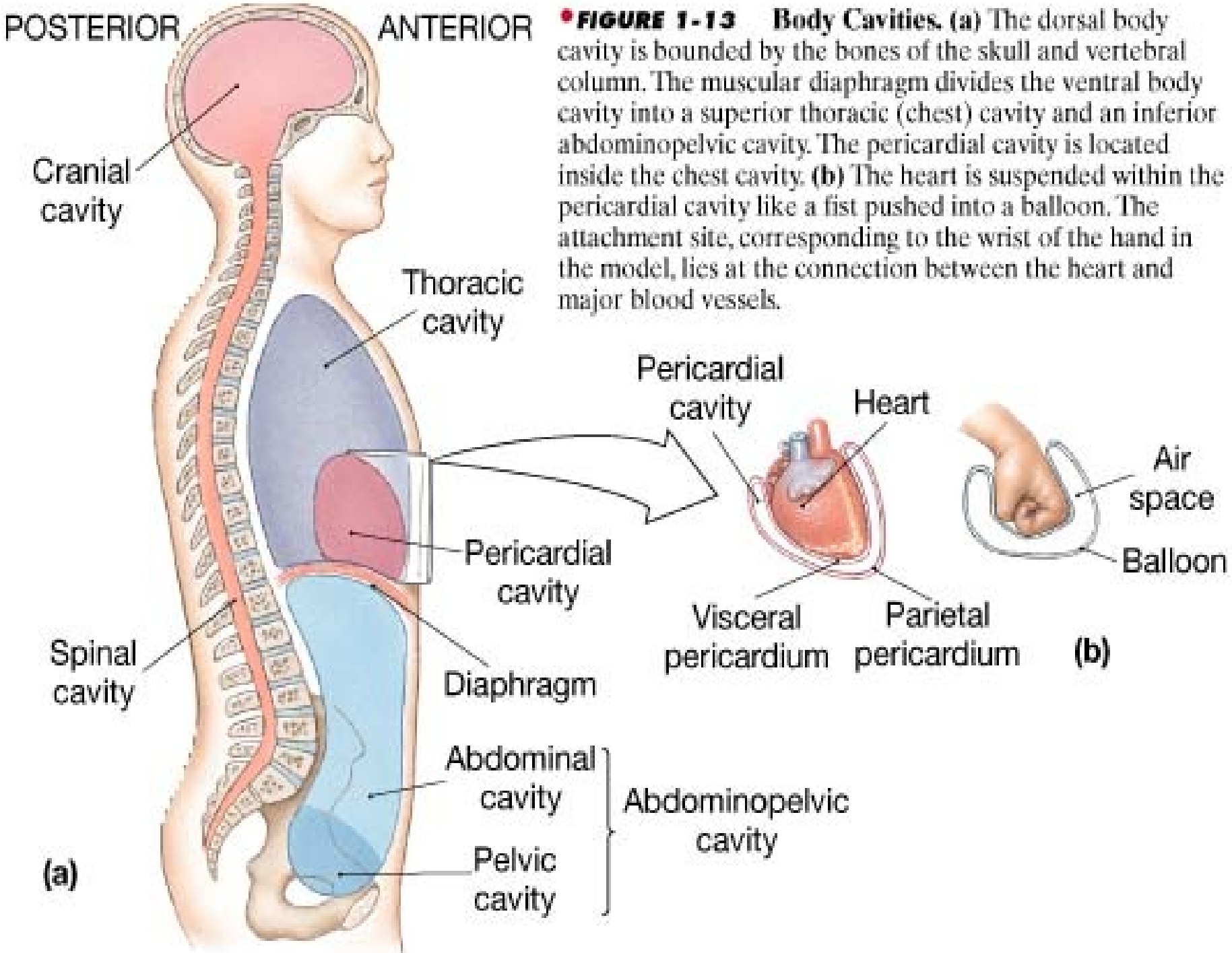
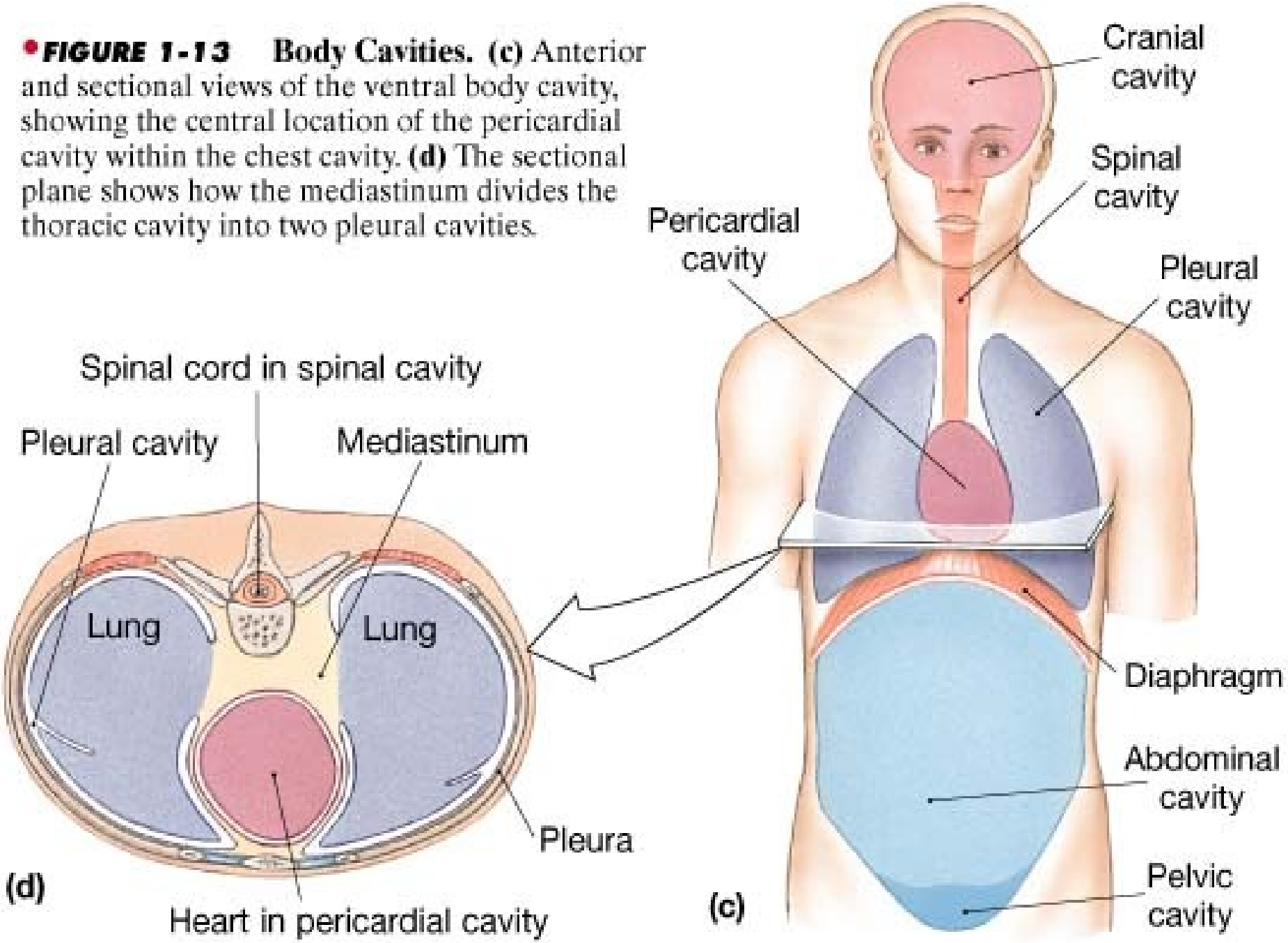


FIGURE 1-13 Body Cavities. (a) The dorsal body cavity is bounded by the bones of the skull and vertebral column. The muscular diaphragm divides the ventral body cavity into a superior thoracic (chest) cavity and an inferior abdominopelvic cavity. The pericardial cavity is located inside the chest cavity. **(b)** The heart is suspended within the pericardial cavity like a fist pushed into a balloon. The attachment site, corresponding to the wrist of the hand in the model, lies at the connection between the heart and major blood vessels.

FIGURE 1-13 Body Cavities. (c) Anterior and sectional views of the ventral body cavity, showing the central location of the pericardial cavity within the chest cavity. **(d)** The sectional plane shows how the mediastinum divides the thoracic cavity into two pleural cavities.



UPPER THORACIC CAVITY

- The **pleural cavities** enclose the lungs, while the pericardial cavity surrounds the **heart** (Fig 1.10c).

UPPER THORACIC CAVITY

- The **mediastinum** is a broad, median partition between the lungs that extends from the sternum to the vertebral column, it contains all contents of the thoracic cavity except the lungs.
- The **pericardial cavity** encloses the heart and great vessels.

ABDOMINOPELVIC CAVITY

- The abdominopelvic cavity is divided into a superior abdominal and an inferior pelvic cavity (Fig 1.9).

ABDOMINOPELVIC CAVITY

- **Viscera** of the **abdominal cavity** include the stomach, spleen, pancreas, liver, gallbladder, small intestine, and most of the large intestine (Fig 1.11).

ABDOMINOPELVIC CAVITY

- **Viscera** of the **pelvic cavity** include the urinary bladder, portions of the large intestine and internal female and male reproductive structures (Fig 1.11).

ABDOMINOPELVIC CAVITY

- Thoracic and Abdominal Cavity **Membranes:**
  - A thin, slippery **serous membrane** covers the viscera within the thoracic and abdominal cavities and also lines the walls of the thorax and abdomen.

ABDOMINOPELVIC CAVITY

- Parts of the serous membrane are the **parietal layer** which lines the walls of the cavities and the **visceral layer** which covers and adheres to the viscera within the cavities.

ABDOMINOPELVIC CAVITY

- **Serous fluid** between the two layers reduces friction and allows the viscera to slide somewhat during movements.
- The serous membranes include the **pleura**, **pericardium** and **peritoneum** (Table 1.3).

PLEURAL MEMBRANE

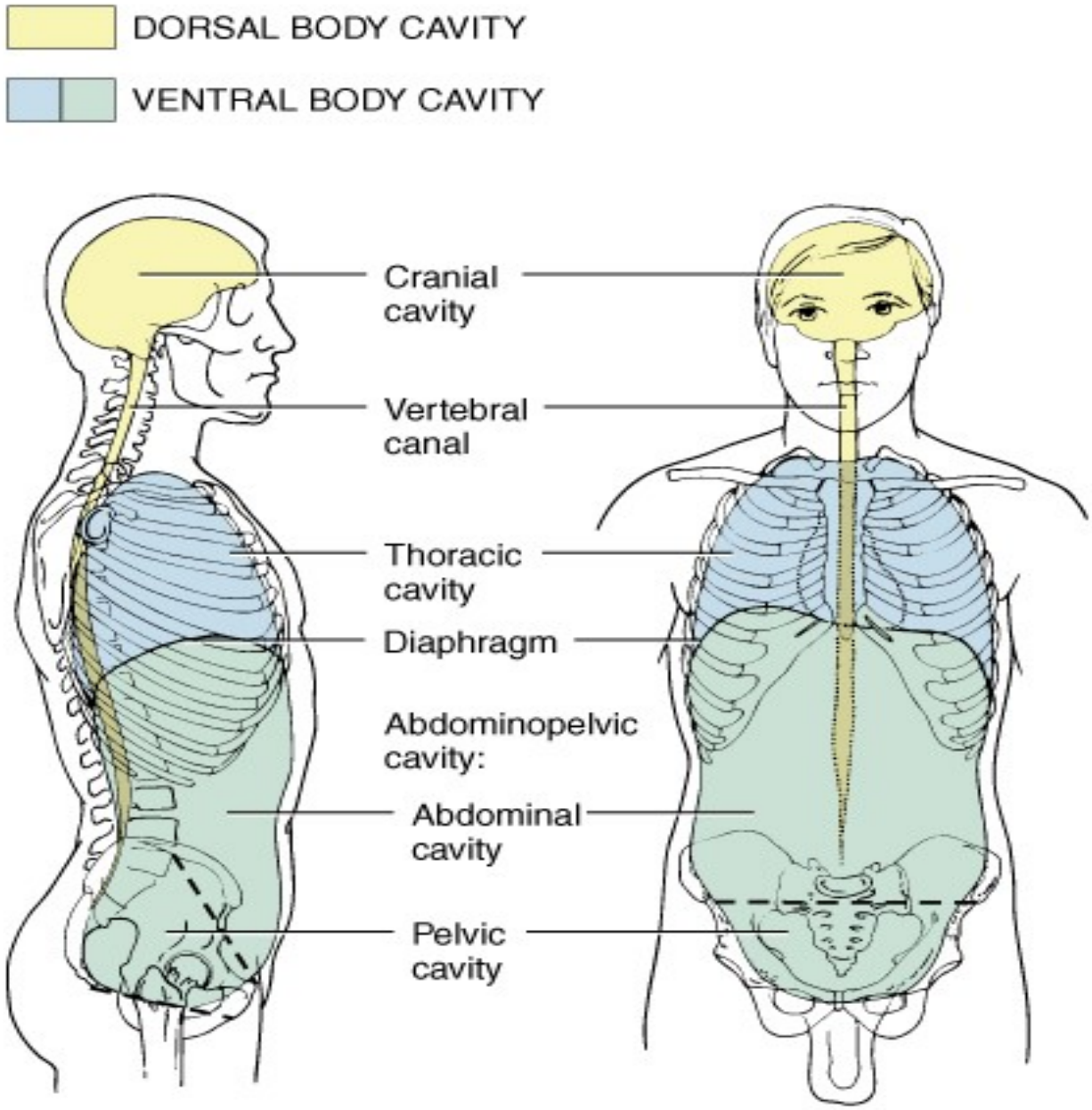
- The **pleural membrane** surrounds the lungs, with the **visceral pleura** clinging to the surface of the lungs and the **parietal pleura** lining the chest wall.

PERICARDIUM

- The serous membrane of the pericardial cavity is the **pericardium**, with visceral pericardium covering the surface of the heart and the parietal pericardium lining the chest wall.

PERITONEUM

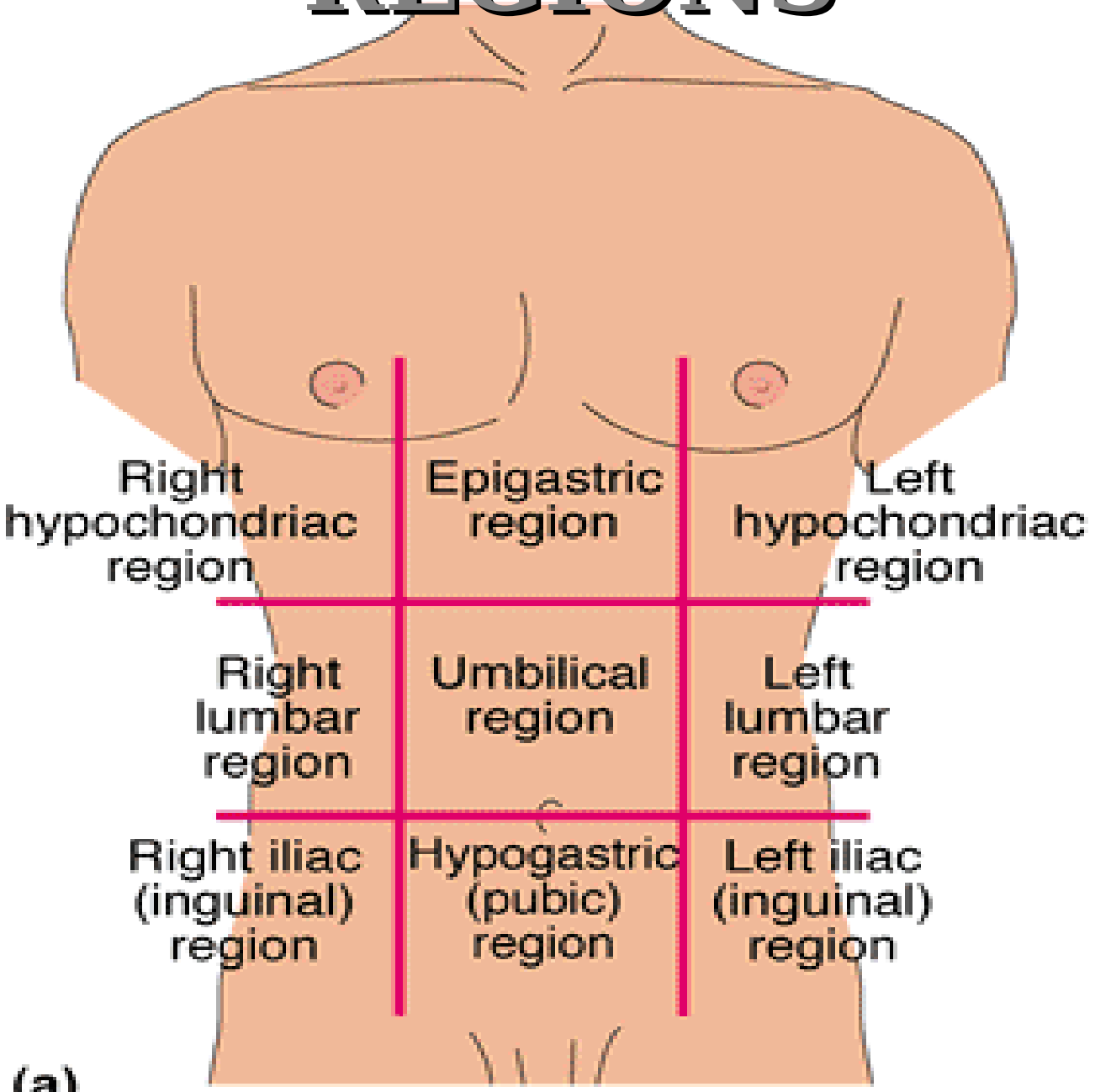
- The **peritoneum** is the serous membrane of the abdominal cavity, with the visceral peritoneum covering the abdominal viscera and the parietal peritoneum lining the abdominal wall.



ABDOMINOPELVIC REGIONS

- To describe the location of organs easily, the abdominopelvic cavity may be divided into **nine regions** by drawing four imaginary lines as shown in Fig 1.12a.

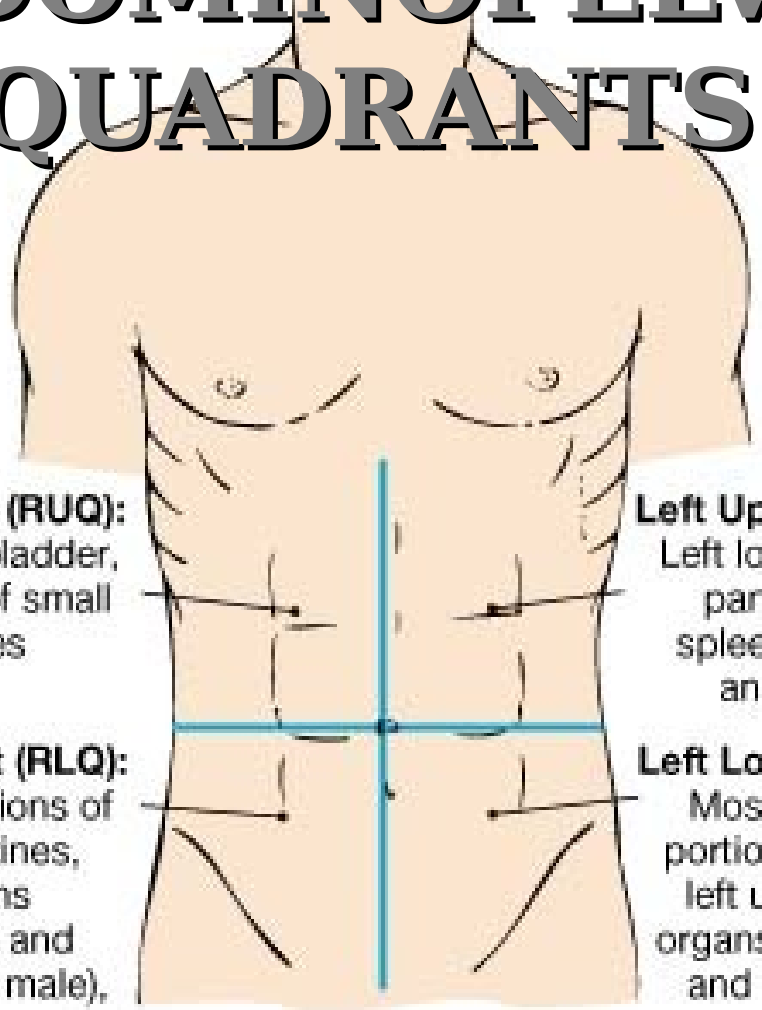
REGIONS


Right hypochondriac region
Epigastric region
Left hypochondriac region
Right lumbar region
Umbilical region
Left lumbar region
Right iliac (inguinal) region
Hypogastric (pubic) region
Left iliac (inguinal) region
(a)

ABDOMINOPELVIC QUADRANTS

- To locate the site of an abdominopelvic abnormality in clinical studies, the abdominopelvic cavity may be divided into **quadrants** by passing imaginary horizontal and vertical lines through the umbilicus (Fig 1.12b).

ABDOMINOPELVIC QUADRANTS



Right Upper Quadrant (RUQ): Right lobe of liver, gallbladder, right kidney, portions of small and large intestines

Left Upper Quadrant (LUQ): Left lobe of liver, stomach, pancreas, left kidney, spleen, portions of small and large intestines

Right Lower Quadrant (RLQ): Cecum, appendix, portions of small and large intestines, reproductive organs (right ovary in female and right spermatic cord in male), right ureter

Left Lower Quadrant (LLQ): Most of small intestine, portions of large intestine, left ureter, reproductive organs (left ovary in female and left spermatic cord in male)

(a)

FIGURE 1-8 Abdominopelvic Quadrants and Regions. (a) Abdominopelvic quadrants divide the area into four sections. These terms, or their abbreviations, are most often used in clinical discussions.

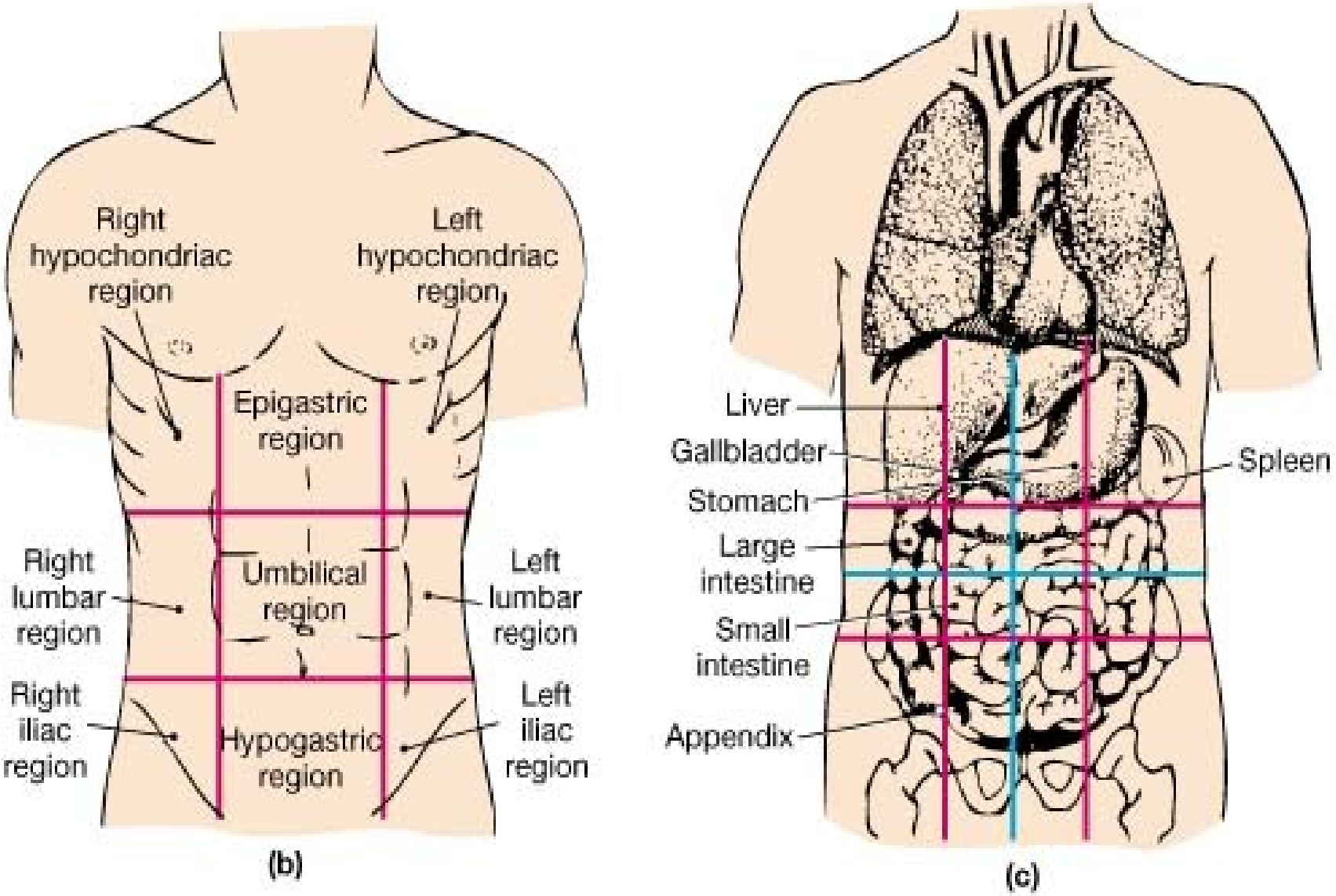


FIGURE 1-8 Abdominopelvic Quadrants and Regions. **(b)** More-precise regional descriptions are provided by reference to the appropriate abdominopelvic region. **(c)** Quadrants or regions are useful because there is a known relationship between superficial anatomical landmarks and underlying organs.